

ABSTRACT

This invention provides a system for efficiently producing differentiated cells from pluripotent cells, such as human embryonic stem cells. Rather than permitting the cells to form embryoid bodies according to established techniques, differentiation is effected directly in monolayer culture on a suitable solid surface. The cells are either plated directly onto a differentiation-promoting surface, or grown initially on the solid surface in the absence of feeder cells and then exchanged into a medium that assists in the differentiation process. The solid surface and the culture medium can be chosen to direct differentiation down a particular pathway, generating a cell population that is remarkably uniform. The methodology is well adapted to bulk production of committed precursor and terminally differentiated cells for use in drug screening or regenerative medicine.